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**1** [Multidimensional access methods](#)

Volker Gaede, Oliver Günther

 June 1998 **Computing Surveys (CSUR)** , Volume 30 Issue 2

**Publisher:** ACM

Full text available: Pdf (1.05 MB)

Additional Information: full citation, abstract, re

**Bibliometrics:** Downloads (6 Weeks): 83, Downloads (12 Months): 527, Citation

Search operations in databases require special support at the physical level. In conventional databases as well as spatial databases, where typical search queries find all objects that contain ...

**Keywords:** data structures, multidimensional access methods

**2** [Object-based and image-based object representations](#)

Hanan Samet

 June 2004 **Computing Surveys (CSUR)** , Volume 36 Issue 2

**Publisher:** ACM

Full text available: Pdf (1.05 MB)

Additional Information: full citation, abstract, re

**Bibliometrics:** Downloads (6 Weeks): 42, Downloads (12 Months): 368, Citation

An overview is presented of object-based and image-based representative interiors. The representations are distinguished by the manner in which they support two fundamental queries in database applications: (1) Feature ...

**Keywords:** Access methods, R-trees, feature query, geographic information space, location query, object space, octrees, pyramids, quadrees, space databases

**3** [Collision detection and proximity queries](#)

Sunil Hadap, Dave Eberle, Pascal Volino, Ming C. Lin, Stephane Hedon, Ch

 August 2004 **SIGGRAPH '04: SIGGRAPH 2004 Course Notes**
**Publisher:** ACM

Full text available: Pdf (11.22 MB)

Additional Information: full citation, abstract

**Bibliometrics:** Downloads (6 Weeks): 85, Downloads (12 Months): 619, Citation

This course will primarily cover widely accepted and proved methodology

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addition more advanced or recent topics such as continuous collision detection, graphics hardware will be introduced. When appropriate ...

#### 4 Level set and PDE methods for computer graphics


 David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, R. August 2004 **SIGGRAPH '04: SIGGRAPH 2004 Course Notes**  
**Publisher:** ACM


Full text available:  Pdf (17.07 MB) Additional Information: full citation, abstract, re

**Bibliometrics:** Downloads (6 Weeks): 137, Downloads (12 Months): 1087, Cita

Level set methods, an important class of partial differential equation (PDE) surfaces implicitly as the level set (iso-surface) of a sampled, evolving field with preparatory material that introduces the ...

#### 5 Data and memory optimization techniques for embedded systems

 P. R. Panda, F. Catthoor, N. D. Dutt, K. Danckaert, E. Brockmeyer, C. Kulkarni, Kjeldsberg April 2001 **Transactions on Design Automation of Electronic Systems**  
**Publisher:** ACM

Full text available:  Pdf (339.91 KB) Additional Information: full citation, abstract, re


**Bibliometrics:** Downloads (6 Weeks): 80, Downloads (12 Months): 556, Citation

We present a survey of the state-of-the-art techniques used in performing optimizations in embedded systems. The optimizations are targeted directly at memory subsystem, and impact one or more out of three important ...

**Keywords:** DRAM, SRAM, address generation, allocation, architecture evaluation, transformation, data cache, data optimization, high-level synthesis, memory customization, memory power dissipation, register file, size estimation, s

#### 6 Real-time shading


 Marc Olano, Kurt Akeley, John C. Hart, Wolfgang Heidrich, Michael McCool, August 2004 **SIGGRAPH '04: SIGGRAPH 2004 Course Notes**  
**Publisher:** ACM


Full text available:  Pdf (7.39 MB) Additional Information: full citation, abstract, re

**Bibliometrics:** Downloads (6 Weeks): 87, Downloads (12 Months): 703, Citation

Real-time procedural shading was once seen as a distant dream. When it was offered four years ago, real-time shading was possible, but only with combining the effects of tens to hundreds of rendering ...

#### 7 Geometric modeling based on polygonal meshes


 Mario Botsch, Mark Pauly, Leif Kobbelt, Pierre Alliez, Bruno Lévy, Stephan J. August 2007 **SIGGRAPH '07: SIGGRAPH 2007 courses**  
**Publisher:** ACM

Full text available:  Pdf (44.53 MB) Additional Information: full citation, appendices, references


**Bibliometrics:** Downloads (6 Weeks): 368, Downloads (12 Months): 1407, Cita

In the last years triangle meshes have become increasingly popular and in many different areas of computer graphics and geometry processing, triangle meshes developed into a valuable alternative ...

#### 8 Glitt: Generic, efficient, random-access GPU data structures

 Aaron E. Lefohn, Shubhabrata Sengupta, Joe Kniss, Robert Strzodka, John  
January 2006 **Transactions on Graphics (TOG)** , Volume 25 Issue 1

**Publisher:** ACM

Full text available:  Pdf (1.52 MB)

Additional Information: [full citation](#), [abstract](#), [re](#)

**Bibliometrics:** Downloads (6 Weeks): 41, Downloads (12 Months): 308, Citation

This article presents Glitt, an abstraction and generic template library for access graphics processor (GPU) data structures. Like modern CPU data enables GPU programmers to separate algorithms from ...

**Keywords:** Adaptive, GPGPU, GPU, adaptive shadow maps, data structu  
multiresolution, octree textures, parallel computation

#### 9 Integrating symbolic images into a multimedia database system using abstraction approaches

Aya Soffer, Hanan Samet

December 1998 **The VLDB Journal — The International Journal on Ver**  
Issue 4

**Publisher:** Springer-Verlag New York, Inc.

Full text available:  Pdf (227.30 KB)


Additional Information: [full citation](#), [abstract](#), [re](#)

**Bibliometrics:** Downloads (6 Weeks): 15, Downloads (12 Months): 83, Citation

Symbolic images are composed of a finite set of symbols that have a sen  
symbolic images include maps (where the semantic meaning of the symt  
engineering drawings, and floor plans. Two approaches for ...

**Keywords:** Image indexing, Multimedia databases, Query optimization,  
databases, Symbolic-image databases

#### 10 Part IV: runtime texture synthesis

 Sylvain Lefebvre

August 2007 **SIGGRAPH '07: SIGGRAPH 2007 courses**


**Publisher:** ACM

Full text available:  Mov (106:46 MIN),  Pdf (11.07 MB) Additional Information: [full cita](#)

**Bibliometrics:** Downloads (6 Weeks): 11, Downloads (12 Months): 157, Citation

A typical texture synthesis algorithm takes as input a small example ima  
larger image resembling it within a few minutes. Such algorithms are ext  
texture generators. However, once the texture is synthesized ...

#### 11 Spatial data structures

 Hanan Samet

August 2007 **SIGGRAPH '07: SIGGRAPH 2007 courses**

**Publisher:** ACM

Additional Information:

[full citation](#), [abstract](#), [references](#)**Bibliometrics:** Downloads (6 Weeks): n/a, Downloads (12 Months): n/a, Citation

An overview is presented of the use of spatial data structures in spatial c hierarchical data structures, including a number of variants of quadtrees respect to the space occupied by it. Such techniques ...


**Keywords:** R-tree, R\*-tree image processing, hierarchical spatial data s points, quadtrees, rectangles, spatial databases

## 12 [SINA: scalable incremental processing of continuous queries in spati](#)

 Mohamed F. Mokbel, Xiaoping Xiong, Walid G. Aref

June 2004 **SIGMOD '04:** Proceedings of the 2004 ACM SIGMOD internatio Management of data

**Publisher:** ACM


Full text available:  Pdf (332.35 KB)

Additional Information: [full citation](#), [abstract](#), [re](#)


**Bibliometrics:** Downloads (6 Weeks): 14, Downloads (12 Months): 111, Citation

This paper introduces the *Scalable INcremental hash-based Algorithm* (SI algorithm) for evaluating a set of concurrent continuous spatio-temporal q two goals in mind: (1) Scalability in terms of the ...

## 13 [Enabling scientific workflows in virtual reality](#)

 Oliver Kreylos, Gerald Bawden, Tony Bernardin, Magali L. Bilen, Eric S. Coy Hamann, Margarete Jägemac, Louise H. Kellogg, Oliver G. Staadt, Dawn Y. June 2006 **VRCA '06:** Proceedings of the 2006 ACM international confere continuum and its applications

**Publisher:** ACM

Full text available:  Pdf (310.56 KB)


Additional Information: [full citation](#), [abstract](#), [re](#)

**Bibliometrics:** Downloads (6 Weeks): 31, Downloads (12 Months): 216, Citation

To advance research and improve the scientific return on data collection the geosciences, we have developed methods of interactive visualization immersive virtual reality (VR) environments. Earth ...


**Keywords:** geosciences, scientific visualization, virtual reality, workflow

## 14 [Efficient query processing on spatial networks](#)

 Jagan Sankaranarayanan, Hourman Alborzi, Hanan Samet

November 2005 **GIS '05:** Proceedings of the 13th annual ACM international information systems

**Publisher:** ACM

Full text available:  Pdf (1.40 MB)


Additional Information: [full citation](#), [abstract](#), [re](#)

**Bibliometrics:** Downloads (6 Weeks): 12, Downloads (12 Months): 113, Citation

A framework for determining the shortest path and the distance between spatial network is presented. The framework, termed SILC, uses *path co* path and the spatial positions of vertices on ...

**Keywords:** SILC framework, location-based services, path coherence, q databases, spatial networks

### 15 Streaming computation of Delaunay triangulations

 Martin Isenburt, Yuanxin Liu, Jonathan Shewchuk, Jack Snoeyink  
July 2006 **SIGGRAPH '06: SIGGRAPH 2006 Papers**

**Publisher:** ACM

Full text available:  [Mov](#) (20:20 MIN),  [Pdf](#) (387.93 KB) Additional Information: [full citation](#), [abstract](#), [index](#), [tr](#)

**Bibliometrics:** Downloads (6 Weeks): 29, Downloads (12 Months): 214, Citation


We show how to greatly accelerate algorithms that compute Delaunay triangulations of distributed point sets in 2D and 3D by exploiting the natural spatial coherence of the input. We achieve large performance gains by introducing *spatial coherence*...

**Keywords:** *Delaunay triangulation, TIN terrain model, geometry processing, stream processing*


Also published in:

July 2006 **Transactions on Graphics (TOG)** Volume 25 Issue 3

### 16 Hardware acceleration for spatial selections and joins

 Chengyu Sun, Divyakant Agrawal, Amr El Abbadi  
June 2003 **SIGMOD '03: Proceedings of the 2003 ACM SIGMOD international conference on Management of data**

**Publisher:** ACM

Full text available:  [Pdf](#) (744.80 KB) Additional Information: [full citation](#), [abstract](#), [tr](#)

**Bibliometrics:** Downloads (6 Weeks): 10, Downloads (12 Months): 66, Citation


Spatial database operations are typically performed in two steps. In the first step, the minimum bounding rectangles (MBRs) of the objects are used to quickly filter out objects that do not intersect. In the second step, the *refinement* step, the objects are processed in detail.

**Keywords:** hardware acceleration, spatial join, spatial selection

### 17 Adaptive 4-8 Texture Hierarchies

Lok M. Hwa, Mark A. Duchaineau, Kenneth L. Joy  
October 2004 **VIS '04: Proceedings of the conference on Visualization '04**

**Publisher:** IEEE Computer Society

Full text available:  [Pdf](#) (315.69 KB) Additional Information: [full citation](#), [abstract](#), [tr](#)

**Bibliometrics:** Downloads (6 Weeks): 7, Downloads (12 Months): 50, Citation

We address the texture level-of-detail problem for extremely large surface meshes in real-time, view-dependent rendering. A novel texture hierarchy is introduced that adapts to the viewing frustum, in which the texture grids in effect ...

**Keywords:** Large Data Set Visualization, Level-of-Detail Techniques, View-Dependent Textures, Out-of-Core Algorithms

## 18 [Sorting in space: multidimensional, spatial, and metric data structure applications](#)



Hanan Samet

August 2008 **SIGGRAPH '08**: SIGGRAPH 2008 classes

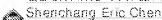
**Publisher**: ACM

Full text available: [Mov](#) (104:28 MIN), [Pdf](#) (2.35 MB) Additional Information: [full citation](#)

**Bibliometrics**: Downloads (6 Weeks): 55, Downloads (12 Months): 260, Citation

The representation of spatial data is an important issue in game program visualization, solid modeling, and related areas including computer vision systems (GIS). A wide number of representations is ...

## 19 [QuickTime VR: an image-based approach to virtual environment navigation](#)



Shen-Chang Eric Chen

September 1995 **SIGGRAPH '95**: Proceedings of the 22nd annual conference on interactive techniques

**Publisher**: ACM

Full text available: [Pdf](#) (347.59 KB) Additional Information: [full citation](#), [references](#)

**Bibliometrics**: Downloads (6 Weeks): 57, Downloads (12 Months): 284, Citation

**Keywords**: environment maps, image registration, image warping, panoramic display, view interpolation, virtual reality

## 20 [Representing shape with a spatial pyramid kernel](#)



Anna Bosch, Andrew Zisserman, Xavier Munoz

July 2007 **CVPR '07**: Proceedings of the 6th ACM international conference on computer vision

**Publisher**: ACM

Full text available: [Pdf](#) (3.15 MB) Additional Information: [full citation](#), [abstract](#), [references](#)

**Bibliometrics**: Downloads (6 Weeks): 33, Downloads (12 Months): 192, Citation

The objective of this paper is classifying images by the object categories motorbikes or dolphins. There are three areas of novelty. First, we introduce a local image shape and its spatial layout, ...

**Keywords**: object and video retrieval, shape features, spatial pyramid kernel

Result

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